

REMARKS

Claims 19-30 and 34-36 are pending with claims 19, 22, 25, 28 and 34 being independent. Claims 31-33 have been canceled; claims 19, 22, 25 and 28 have been amended; and claims 34-36 have been added. No new matter has been introduced.

Claims 31-33 were rejected under section 112, first paragraph. This rejection is obviated by the cancellation of those claims, as are the other rejections of claims 31-33..

Claims 19, 20, 22 and 23 have been rejected as being unpatentable over Miyashita (WO 98/24271, which corresponds to U.S. Patent No. 6,821,553) in view of Wolk (U.S. Patent No. 6,194,119) and Ura (U.S. Patent No. 6,054,392).

Applicant requests reconsideration and withdrawal of this rejection because neither Miyashita, Wolk, Ura, nor any combination of the three describes or suggests hardening top surfaces of first and second insulating films by performing first and second plasma treatments, as recited in each of independent claims 19 and 22.

Recognizing that Miyashita does not even describe or suggest performing plasma treatment on first and second insulating films, the rejection asserts that Ura, at col. 1, line 51 to col. 2, line 6, describes the use of a plasma treatment to remove a damaged layer of an interlayer insulating film, and argues that it therefore would have been obvious to perform plasma treatments in the device of Miyashita. However, that passage actually describes the use of plasma treatment to form a contact hole and to remove a damaged layer of photoresist ("And, it is popular that oxygen plasma treatment is conducted after etching operation to remove the plasma damage layer of the photoresist."). Thus, Ura describes the use of a plasma treatment for removing a damaged layer of a photoresist, and in no way describes or suggests the use of a plasma treatment for hardening an upper surface of an insulating film, as recited in claims 19 and 22.

Moreover, even assuming for sake of argument that the rejection was correct in asserting that Ura describes the use of a plasma treatment to remove the upper surface of an insulating film, the mere use of plasma treatment does not constitute "hardening a top surface" of an insulating film, as recited in the claims. Perhaps recognizing this failure, the rejection, with

respect to claim 22, recites without support that the plasma treatment "must necessarily harden the insulating layer films." However, there is no evidence that this is the case. Indeed, if Ura had used plasma treatment to remove the upper surface of the interlayer insulating film, this would serve as evidence that plasma treatment does not necessarily result in hardening, as removing the top surface necessarily does not constitute hardening the top surface.

The rejection also asserts (again without support) that removal of the damaged layer can be interpreted to be removing the softened layer to expose the harder underlying layer. The rejection has provided no support for the assertion that the underlying layer would be harder than the upper layer. Moreover, claims 19 and 22 do not recite "exposing" a harder layer. Rather, they recite "hardening top surfaces" of the insulating layer films.

Accordingly, for at least these reasons, the rejection should be withdrawn.

Claims 21 and 24, which depend from claims 19 and 22, have been rejected as being unpatentable over Miyashita in view of Wolk, Ura and Hu (U.S. Patent No. 6,057,048). Applicant requests reconsideration and withdrawal of this rejection because Hu does not remedy the failure of the other references to describe or suggest the subject matter of independent claims 19 and 22.

Claims 25, 26, 28 and 29 have been rejected as being unpatentable over Miyashita in view of Wolk, Ura and Jones (U.S. Patent No. 6,337,492). Claims 25 and 28, like claims 19 and 22, recite "hardening a top surface of the first insulating film by performing a plasma treatment on the first insulating film." Accordingly, applicant requests reconsideration and withdrawal of this rejection for the reasons discussed above and because Jones, which is cited as showing a diamond-like carbon film, does not remedy the failure of the other references to describe or suggest hardening the top surface of an insulating film by performing plasma etching.

Claims 27 and 30, which depend from claims 25 and 28, have been rejected as being unpatentable over Miyashita in view of Wolk, Ura, Jones and Hu. Applicant requests reconsideration and withdrawal of this rejection because Hu does not remedy the failure of the other references to describe or suggest the subject matter of independent claims 25 and 28.

New independent claim 34 recites "hardening a top surface of the first insulating film by performing a first plasma treatment on the first insulating film after forming the first insulating

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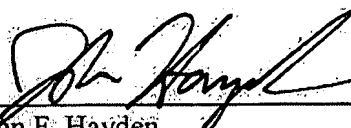
film." Accordingly, new independent claim 34 and its dependent claims are believed to be allowable for at least the reasons discussed above.

Applicant submits that all claims are in condition for allowance.

The fee in the amount of \$120 in payment of the one-month extension fee is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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